

REMARKS

Applicants appreciate the courtesy shown by the Examiner in discussing this case with Applicants' representative, Christine Yang on October 20, November 12 and November 13, 2009, respectively. During the interviews, the Examiner agreed that the currently amended claims would overcome 35 USC 112 rejection and that Vaughn (US 3,111,190) does not meet at least claims 1, 6, 11 and 17, which requires that an inner surface of each of rings having a substantially uniform inner diameter which defines an opening therethrough, wherein the opening is unobstructed. Please note that additional revisions have been made in claim 28, which includes the feature of "the inner diameter of each of the rings is sized to be 25% to 50% smaller than the inner diameter of the tubular member to provide constriction of the exhaust gas passageway." The additional revisions are at least supported at, e.g., page 5, lines 20-22 of the specification, which provides that the inner diameter of hose body 210 can be about 2 inches and the inner diameter of the rings 220 can be about 1 (which is 50% smaller than 2 inches) to 1-1/2 inches (which is 25% smaller than 2 inches). The discussions of the interview are reflected in the above amendments and the following remarks.

Reconsideration is requested in view of the above amendments and the following remarks. Claims 1, 6, 11, 17 and 28 have been amended. New claims 29-31 have been added. Support for the amendments and new claims can be found in the original disclosure, e.g., page 5, lines 19-22 of the specification and Figs. 4, 5, 7 and 8, among other places. Claim 22 has been canceled without prejudice. No new matter has been added. Claims 1, 3-4, 6-8, 10-15, 17-21 and 23-31 are pending in the application.

Claim Rejections – 35 USC § 112

Claims 1, 3-4, 6-8, 10-15 and 17-28 have been rejected under 35 USC 112, first paragraph, as failing to comply with the written description requirement. Applicants respectfully traverse this rejection. Claims 1, 6, 11, 17 and 28 have been revised to address this issue. Please note that claim 28 has been revised to include the feature of "the inner diameter of each of the rings is sized to be 25% to 50% smaller than the inner diameter of the tubular member to provide constriction of the exhaust gas passageway."

This revision is at least supported at, e.g., page 5, lines 20-22 of the specification, which provides that the inner diameter of hose body 210 can be about 2 inches and the inner diameter of the rings 220 can be about 1 (which is 50% smaller than 2 inches) to 1-1/2 inches (which is 25% smaller than 2 inches). Withdrawal of the rejection is respectfully requested. Applicants are not conceding the correctness of the rejection.

Claim Rejections – 35 USC § 102

Claims 1, 4, 11-14, 20-23 and 25-27 are rejected under 35 USC § 102(b) as being anticipated by Vaughn (US 3,111,190). Applicants respectfully traverse this rejection to the extent it is maintained. The rejection of claim 22 is moot in view of the cancellation of the claim. Applicants are not conceding the correctness of the rejection for claim.

Claim 1 requires two or more distinct rings each having a generally circular inner surface that has a substantially uniform inner diameter which defines an unobstructed opening therethrough. Claim 1 also requires that each ring have surfaces positioned substantially perpendicular to a flow of a cooling water and exhaust gases, wherein the rings constrict a passageway which causes mixing of the cooling water with the exhaust gases to reduce noise generated by the combustion engine.

Vaughn fails to disclose such an arrangement as required by claim 1. On the contrary, Vaughn discusses a plurality of rings 3, 4, 5, 6, 7, each of which carries a plurality of vertically spaced vanes 10 (see Vaughn, Figs. 1-3) for deflecting cooling water and exhaust gas in a direction indicated by arrows in Fig. 1. That is, the vertically spaced vanes 10 in fact obstruct the opening of each of the rings 3, 4, 5, 6, 7 and are essential structures for the Vaughn muffler to work, e.g., deflecting cooling water and exhaust gas. This is completely distinct from the invention of claim 1, which requires two or more distinct rings, each of which has an inner diameter which defines an unobstructed opening therethrough, where the opening is unobstructed. In fact, the invention of claim 1 provides a much simpler structure than Vaughn for mixing the cooling water with the exhaust gases. For at least the reason above, claim 1 is patentable over Vaughn. Claims 4, 20-21, 23, 25 and 27 depend ultimately from claim 1 and are patentable along with claim 1 and need not be separately distinguished at this time.

Applicants are not conceding the relevance of the rejection to the remaining features required by claims 1, 4, 20-11, 23, 25 and 27.

Claim 11, which include similar limitations concerning at least two distinct rings, each of which has an inner diameter which defines an unobstructed opening therethrough, are patentable for the reason discussed with regard to claim 1. The present record fails to disclose this arrangement. For at least these reasons, claim 11 is patentable over Vaughn. Claims 12-14 and 26 depend from claim 11 and are patentable along with claim 11 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features required by claims 11-14 and 26.

For at least the foregoing, claims 1, 4, 11-14, 20-21, 23 and 25-27 are distinguishable from and allowable over Vaughn. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claim Rejections – 35 USC § 103

Claims 3, 6-8, 10, 17-19 and 24 are rejected under 35 USC 103(a) as being unpatentable over Vaughn in view of Jorg Alexnat et al. (US 6,058,702) as stated in paragraph 17 of the Office Action. Applicants respectfully traverse this rejection.

Claims 3 and 19 depend ultimately from claim 1 and are patentable over Vaughn in view of Jorg Alexnat et al. for at least the same reasons discussed above regarding claims 1, 4, 20-21, 23, 25 and 27. Jorg Alexnat et al. do not remedy the deficiencies of Vaughn. Jorg Alexnat et al. merely discuss a straight pipe 17, a first silencer 19 and a long bent pipe 22 that are connected by three elastically deformable line members 16, 18, 21 (see Jorg Alexnat, col. 5, lines 5-49 and Fig. 1). Applicants are not conceding the relevance of the rejection to the remaining features of claims 3 and 19.

Claims 6-8 and 10 are patentable over Vaughn in view of Jorg Alexnat et al. for reasons similar to those discussed above regarding claims 1, 4, 20-21, 23, 25 and 27. Claim 6 requires two or more distinct rings, each of which has a generally circular inner surface, which has a substantially uniform inner diameter that defines an unobstructed

opening therethrough. Claim 6 further requires that each of the rings have surfaces positioned substantially perpendicular to a flow of cooling water and exhaust gases, wherein the rings constrict a passageway which causes mixing of cooling water with exhaust gases to reduce noise generated by the combustion engine.

The present rings located on the inner diameter of the tubular member help form water droplets from the raw water that flows into the tubular member. In one example, the rings themselves, rather than any additional structure inside the rings, constrict the water and interfere with the flow of the water. The water then builds up and spills over the walls of the rings, creating turbulence in the flowing water resulting in a substantial amount of water droplets. The constriction provided by the rings also increases the velocity of the exhaust gas to more effectively pick up drops of water from the bottom of the turbulent member and mix the water with the gas. These water droplets from the flowing water are mixed with gas, and the noise generated by the combustion engine is reduced. The present rings advantageously provide a simple structure for effectively dampening sounds of the engine exhaust and thus significantly reduce the cost for manufacturing the exhaust apparatus (see, for example, page 4, lines 12-23 and page 5, line 27 to page 6, line 9 of the present specification, among other places).

Vaughn fails to teach or suggest such arrangements as required by claim 6. On the contrary, Vaughn discusses a plurality of rings 3, 4, 5, 6, 7, each of which carries a plurality of vertically spaced vanes 10 (see Vaughn, Figs. 1-3) for deflecting cooling water and exhaust gas in a direction indicated by arrows in Fig. 1. That is, the vertically spaced vanes 10 in fact obstruct the opening of each ring, and are essential for the Vaughn muffler to work, e.g., deflecting cooling water and exhaust gas. This is completely distinct from the invention of claim 6. In fact, the present invention of claim 6 provides a much simpler structure than Vaughn for mixing the cooling water with the exhaust gases. Moreover, nowhere does Vaughn discuss a flexible exhaust tubular member required by claim 6 (see Vaughn, col. 1, lines 24-30). In fact, the Vaughn exhaust pipe 1 appears to include two rigid, longitudinally extending rods 8 and 9 (see Vaughn, col. 1, lines 31-35 and Figs. 1-3) and thus would not be flexible.

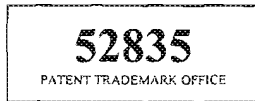
Jorg Alexnat et al. do not remedy the deficiencies of Vaughn. Jorg Alexnat et al. merely discuss a straight pipe 17, a first silencer 19 and a long bent pipe 22 that are connected by three elastically deformable line members 16, 18, 21 (see Jorg Alexnat, col. 5, lines 5-49 and Fig. 1). For at least these reasons, claim 6 is patentable over Vaughn in view of Jorg Alexnat et al. Claims 7-8 and 10 depend ultimately from claim 6 and are patentable along with claim 6 and need not be separately distinguished at this time. Applicants are not conceding the relevance of the rejection to the remaining features required by claims 6-8 and 10.

Claims 17-18 and 24, which include similar limitations concerning two or more rings, each of which has an inner diameter defining an unobstructed opening therethrough, are patentable for the reason as discussed with regard to claim 1, 4, 20-21, 23, 25 and 27.

For at least the foregoing, claims 3, 6-8, 10, 17-19 and 24 are distinguishable from and allowable over Vaughn in view of Jorg Alexnat et al. Favorable reconsideration and withdrawal of the rejection are respectfully requested.

Claim 15 is rejected under 35 USC 103(a) as being unpatentable over Vaughn in view of design choice. Applicants respectfully traverse this rejection. Claim 15 depends from claim 11 and is patentable over Vaughn for at least the same reasons discussed above regarding claims 11-14 and 26. Applicants are not conceding the relevance of the rejection to the remaining features of claim 15.

In view of the above, favorable reconsideration in the form of a notice of allowance is respectfully requested. Any questions regarding this communication can be directed to Applicants' representative listed below.

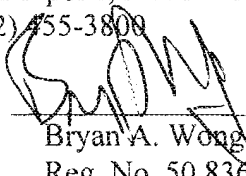


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Respectfully submitted,

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